DOCUMENT RESUME

ED 342 495 PS 020 365

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TITLE Contextual Influences in Mother/Child Conversation: Gross Versus Fine Motor Play.
PUB DATE Apr 91
NOTE 7p.; Paper presented at the Biennial Meeting of the Society for Research in Child Development (Seattle, WA, April 18-20, 1991).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Context Effect; Individual Differences; Language Acquisition; *Mothers; Motor Development; Parent Child Relationship; *Parent Influence; *Play; Psychomotor Skills; *Speech Communication; Toddlers; Toys

ABSTRACT

This study examined the impact of play context on the speech of mothers and children. It was expected that the types of speech produced by both children and mothers when they played with toys that involve fine motor manipulation would differ from the speech produced when they played with toys that involve gross motor play. Sixteen children (eight boys and eight girls) of 18 to 30 months of age, and their mothers, were visited in their homes by a researcher. A motor skills scale measured the children's level of motor development. Mother and child were asked to play with toys provided by the experimenter. One group of toys elicited fine motor play and another elicited gross motor play. The interaction was videotaped and coded for language variables. As expected, motor context made a difference in the types of speech produced by both mother and child. Several issues regarding interpretations and implications of the results are considered. Appended are eight references and related materials. (GLR)

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CONTEXTUAL INFLUENCES IN MOTHER/CHILD CONVERSATION: GROSS VERSUS FINE MOTOR PLAY

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In recent years we have seen increasing recognition that individuals function within contexts and that these contexts have direct and often long lasting impact. The impact of context, to the extent that context varies across individuals, is to contribute to individual difference.

In the field of developmental psychology we have experienced pendulum swings between the examination of individual differences and efforts to account for them and the attempt to delineate universal patterns of development. In the study of child language development the existence of individual differences other than differences in rate of acquisition has recently been a topic of interest. A number of researchers (Bloom, Lightbown, & Hood, 1975; Dore, 1974; Horgan, 1980; Nelson, 1973; Peters, 1977) have noted patterns of differences in the language acquisition of the children they have studied. It has been argued by McCabe (1989) that these differences may be the result of the differing contexts in which these children are learning language. Specifically, it was argued that non-linguistic differences lead to patterns of differences in the linguistic environment to which the child is exposed, thus, subtly influencing language acquisition.

A recent paper by O'Brien and Nagle (1987) is supportive of the argument that different contexts lead to different language input on the part of parents. In their study, these authors demonstrated that both mothers' and fathers' speech was related to play context irrespective of child gender. That is, parents' speech differed as a function of whether the toy context included male sex-typed, female sex-typed, or neutral toys. Regrettably, there are few other studies investigating this phenomenon.

The purpose of the present study was to examine further the impact of play context on the speech of both mothers and children. Whether children are engaged with toys that involve fine motor manipulation versus gross motor play was expected to produce differences in the speech of both participants.

Sixteen children (8 boys and 8 girls) ranging in age from 18 to 30 months and with MLUs ranging from 1.09 to 3.53 (M=1.97) and their mothers took part in the study. They were recruited through contacts with local daycare centers and personal communication. The families were of predominantly middle-class socioeconomic background.

Children and mothers were visited by a single researcher in their own homes at a time mutually convenient. The motor skills domain portion of the Vineland Behavior Scales, Expanded Form (Sparrow, Bella, & Cicchetti, 1985) was administered first. This allowed for a period of familiarization as well as providing a measure of the child's current level of motor development. Following the administration, mother and child were asked to play with some toys provided by the experimenter. The toys were selected to elicit fine motor and gross motor play.

PS 020365

Paper presented at the Biennial Meetings of the Society for Research in Child Development, Seattle, Wash., April, 1991.

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Fine motor toys were presented as a group to be played with for 15 minutes followed by the gross motor toys which were presented for a further 15 minutes. The order of presentation was reversed for half the children to control for order effects. Fine motor play included buttoning, zipping, placing shapes in holes, doing a puzzle with small pieces, playing with a doll, and manipulating objects with intricate parts. Gross motor toys included foam megablocks, a football, a ball toss game, a plastic hockey stick and puck, a large clown doll with no moveable parts, and a hammering toy. The child played with any of the provided toys he/she wished for any portion of the 15 minutes. The interaction was videotaped.

Videotapes were transcribed and coded for language variables. Mothers' speech was coded for noun use, overall pronoun use, deictic pronoun use, object labelling, opportunities provided to children to respond to object labelling, and number of directive statements. Children's speech was coded for noun use, pronoun use, deictic pronoun use, object labelling, and responses to object labelling. Linguistic measures were defined as follows:

Noun use - ratio of nouns to all nouns plus pronouns for each motor context

Deictic pronouns - all pronouns used to indicate place and that serve a pointing function

Object labelling - utterances that simply named an object or (for mothers) requested that the child point to a named object or part of an object

Opportunities for response to object labelling - mothers' object labelling excluding imitation of the child's object labelling and confirmations of the child's provision of an object label

Response to object labelling - children's responses to opportunities provided by mothers, categories of response included, no response, nonverbal response, verbal response, both verbal and nonverbal response

Directive statements - all imperative and nondirect directive statements addressed to the child.

Interrater reliabilities were obtained for transcribing and coding of linguistic measures on 20% of the transcripts. Reliabilities for transcribing ranged from 0.75 to 0.91. Reliabilities for linguistic coding ranged from 0.78 for directive statements and responses to object labelling to 0.99 for number of nouns in mothers' speech.

To compare mothers' speech during gross and fine motor play, 2 (child gender) x 2 (motor activity) repeated measures analyses of variance were conducted. Means for mothers' speech are provided in Tables 1 and 2. A significant difference in noun and general pronoun use between fine and gross motor play was not found, but mothers used significantly more deictic pronouns during fine motor play than during gross motor play [$F(1,14) = 25.81$, p .001]. Mothers also labelled objects more during fine than gross motor play [$F(1,14) = 12.48$, p .01]. Mothers provided more opportunities to respond to object labelling during fine that gross motor play [$F(1,14) = 9.28$, p .01]. This last result is not surprising as this is a function of mothers' object labelling. However, it is of interest in light of the findings for children's speech.

Mothers produced more directive statements during gross than fine motor play [$F(1,14) = 13.33$, p .01]. Analysis of both types of directive statements indicates that there were significant differences in the same direction in the use of both imperatives [$F(1,14) = 9.82$, p .01] and indirect directives [$F(1,14) = 4.58$, p .05]. The former must be interpreted in light of a significant gender by motor activity interaction [$F(1,14) = 5.34$, p .05]. Simple effects post-hoc testing indicated that mothers of males produced significantly more imperatives during gross than

fine motor play [$F(1,7) = 11.03$, $p < .05$], but mothers of girls did not. No other simple effects were significant. (See Table 3 for gender by activity interaction means.)

To compare child speech during gross and fine motor play, 2 (child gender) x (motor activity) repeated measures analyses of variance were conducted. Means for children's speech are provided in Tables 2 and 4. As with mothers, no differences in overall noun and pronoun use were found, but children produced significantly more deictic pronouns during fine than gross motor play [$F(1,14) = 4.99$, $p < .05$]. Unlike mothers, children did not label objects more during fine than gross motor play. In fact, they responded significantly more to opportunities for response to object labelling during gross motor play [$F(1,14) = 6.93$, $p < .05$], even though mothers provided significantly fewer opportunities to do so. It should be noted, however, that these responses, although mainly verbal, were not always an object label, as evidenced by a lack of significant difference in children's object labelling.

As expected, motor context did make a difference in speech produced by both mother and child. During fine motor play, mothers produced more deictic pronouns, more object labels, and more opportunities for responding to object labels. Children also produced more deictic pronouns during fine motor play, but did not label objects more, unlike their mothers. During gross motor play, mothers produced more directive statements and children responded more often to object labelling, even though there were fewer opportunities to do so.

Four issues come to mind. The first is that it is not particularly startling that, in a broad sense, different contexts produce different speech; it is well recognized that speech in informal conversation is different from that used in more formal settings. However, the differing contexts in the present study were only marginally different (i.e., they varied only in the kind of motor activity encouraged) and yet there was a significant impact on the speech produced. Moreover, the impact of a slight difference in context was not just on the specific words used, it is commonsense to expect that difference, but on the linguistic categories that were produced, that is, object labels and pronouns. Because the individual differences in style noted above are characterized by differences in just these linguistic categories, attention to differences produced by different contexts seems imperative.

The second issue concerns the choice of the context of different kinds of motor activity for the present study. What does a difference in kinds of motor activity mean for the development of individual differences in language acquisition? In the present study kind of motor activity was experimentally manipulated, all children participated for equal lengths of time in both kinds of activity. However, in the course of the child's day to day experience, it is likely that kind of motor activity engaged in differs from child to child. Given the demonstration of different language accompaniment, a given child may have quite different language experience as a function of the type of activity he/she chooses. These findings parallel those of O'Brien and Nagle (1987). In that study also, language environment varied as a function of play context and did so irrespective of child gender. However, in the normal course of events boys and girls do not choose to play with male and female sex-typed toys with equal frequency and can be expected, then, to have different language experience as a function of those non-linguistic choices.

The third issue concerns the child's contribution to the linguistic interaction. The impact

of context was not the same for mother and child, as evidenced by the lack of difference in frequency of object labelling by the children, even though such differences were found for mothers. Mothers tended to label parts of objects during fine motor play, but this often occurred while the child's attention was elsewhere. The child exercises some control over his/her linguistic environment by differential attentiveness and responsiveness to the mother's speech.

Finally, finding that even a slight change in context influences the language produced by mother and child might be viewed as a source of frustration for researchers. All studies vary to some degree in the type of toys used and in the environments in which the child's language is studied. How can one come to any conclusions about language in context beyond the very particulars of a given study? Moreover, should not individual contextual differences produce enough error variance to swamp any but the most robust differences? Clearly this is not the case, differences do emerge. It may be important, however, for us to attend more closely to commonalities and differences in context in hopes of determining which differences make a difference.

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TABLE 1

MOTHERS' SPEECH DURING GROSS AND FINE MOTOR PLAY

	Gross	Fine	
Deictic Pronouns	43.68	65.93	$p<.01$
Object Labelling	17.06	25.87	$p<.01$
Opportunities for Child to respond to object labelling	14.31	22.50	$p<.01$
Directive Statements	(56.50)	(38.31)	$p<.01$
Indirect	8.69	5.25	$p<.05$
Direct (Imperatives)	47.81	33.06	$p<.01$

TABLE 2

MOTHERS' AND CHILDREN'S NOUN USE
(% nouns of all nominals)

	Gross	Fine
Mothers	52.71	31.41
Children	51.63	42.78

TABLE 3

MOTHERS' USE OF IMPERATIVES BY CHILD GENDER AND ACTIVITY (Means)

	Gross	Fine	
Mothers of Males	58.25	32.63	$p < .05$
Mothers of Females	37.38	33.50	n.s.

TABLE 4

CHILDREN'S SPEECH DURING GROSS AND FINE MOTOR PLAY

	Gross	Fine	
Deictic Pronouns	20.00	28.00	$p < .05$
Object Labelling	20.56	22.93	n.s.
Response to Object Labelling	63.29	51.25	$p < .05$